

PATENT
108-01 03PCT

WE CLAIM:

1. A lighting system, comprising:
an electrically continuous wiring harness;
a connector unit electrically connected to said wiring harness; and
a light source module electrically connected to said wiring harness
- 5 via said connector unit;
wherein said light source module may be disconnected from said connector unit in the absence of interrupting an electrical connection of said wiring harness.
2. The lighting system of Claim 1, wherein said wiring harness includes at least two electrically continuous wires.
3. The lighting system of Claim 1, wherein said connector unit includes at least two connection posts providing electrical connection to said wires.
4. The lighting system of Claim 1, wherein said light source module includes at least one light emitting diode.
5. The lighting system of Claim 1, further including at least one additional connector unit.
6. The lighting system of Claim 1, further including at least one additional light source module.

7. A lighting system, comprising:
a wiring assembly including:
an electrically continuous wiring harness; and
a connector unit electrically connected to said wiring
5 harness; and
a first light source module electrically connected to said connector
unit;
wherein said first light source module can be removed from said
connector unit in the absence of interrupting a continuous electrical connection
10 of said wiring harness to a second light source module.
8. The lighting system of Claim 7, wherein said wiring assembly
includes at least one additional connector unit electrically coupled to said wiring
harness.
9. The lighting system of Claim 7, wherein said first light source
module is electrically connected with said wiring harness via said connector
unit.
10. The lighting system of Claim 7, wherein said wiring harness
includes a plurality of electrically continuous wires.
11. The lighting system of Claim 10, wherein said wires provide a
plurality of separate circuits within said lighting system.
12. The lighting system of Claim 7, wherein said connector unit
includes a plurality of connection posts, wherein each of said connection posts
is electrically coupled to said wires.
13. The lighting system of Claim 7, wherein said first light source

PATENT
108-01 03PCT

module includes at least one light source unit mounted on a circuit board, wherein said light source unit includes a plurality of light emitting diodes arranged in a cluster.

14. The lighting system of Claim 13 wherein said light emitting diodes emit light of the same color.

15. The lighting system of Claim 13, wherein each of said light emitting diodes emits light of a different color.

16. The lighting system of Claim 13, wherein said light source module includes a light source cover and a light source base adapted to provide a housing for accommodating said circuit board.

17. The lighting system of Claim 16, wherein said light source cover and said light source base are permanently molded together.

18. The lighting system of Claim 7, further including a mounting assembly adapted for mounting said wiring assembly to a structure.

19. A lighting system for mounting to a surface, comprising:
a wiring assembly including an electrically continuous wiring harness and a connector unit,
said connector unit including a plurality of connection posts
5 electrically coupled to said wiring harness; and
a light source module removably connected with said wiring assembly, said light source module including a circuit board,
said circuit board including openings for removable connection with said plurality of connection posts.

PATENT
108-01 03PCT

20. The lighting system of Claim 19, further including a mounting assembly including a mounting base and a wire cover, wherein:

said mounting base is attached to said surface,

said mounting base receives and secures said wiring assembly,

5 and

said wire cover is attached to said mounting base to enclose said wiring harness.

21. The lighting system of Claim 20, wherein said mounting base comprises a linear plastic extrusion.

22. The lighting system of Claim 20, wherein said wire cover is removably attached to said mounting base covering said wiring harness.

23. The lighting system of Claim 19, wherein said wiring harness includes a first electrically continuous wire, a second electrically continuous wire, a third electrically continuous wire, and a common electrical continuous wire.

24. The lighting system of Claim 23, wherein said first, second, third, and common wires are color-coded.

25. The lighting system of Claim 19, wherein said connector unit includes:

a first connection post electrically coupled to said first wire,

a second connection post electrically coupled to said second wire,

5 a third connection post electrically coupled to said third wire, and

a fourth connection post electrically coupled to said common wire.

26. The lighting system of Claim 19, wherein:

PATENT
108-01 03PCT

said circuit board of said light source module includes a first light source unit, and

5 said first light source unit includes a first light emitting diode, a second light emitting diode, and a third light emitting diode arranged in a cluster on said circuit board.

27. The lighting system of Claim 26, wherein:

said first light emitting diode is electrically coupled to said first wire via said first connection post,

5 said second light emitting diode is electrically coupled to said second wire via said second connection post,

said third light emitting diode is electrically coupled to said third wire via said third connection post, and

said first, second and third light emitting diodes are electrically coupled with said common wire via said fourth connection post.

28. The lighting system of Claim 26, wherein the intensity of light emitted from said first, second, and third light emitting diodes is controlled independently.

29. The lighting system of Claim 28, wherein:

said first light emitting diode emits light having a first color frequency,

5 said second light emitting diode emits light having a second color frequency, and

said third light emitting diode emits light having a third color frequency.

30. The lighting system of Claim 19, further including at least one additional connector unit and at least one additional light source module

connected with said additional connector unit.

31. The lighting system of Claim 30, wherein said connector units are spaced apart from each other by about 6 inches.

32. The lighting system of Claim 19, wherein said connector unit includes a wire control assembly top and a wire control assembly bottom, wherein said wire control assembly top includes a plurality of connector ports each adapted for receiving one of said connection posts.

33. The lighting system of Claim 19, wherein said light source module includes a second light source unit.

34. A light source module for a lighting system, comprising:
a housing adapted for removable modular connection with a wiring assembly, wherein at least a portion of said housing is transparent or translucent to visible light;
5 a circuit board disposed within said housing, wherein said housing allows electrical connection of said circuit board with said wiring assembly; and
a light source unit mounted on said circuit board, wherein said light source unit includes a plurality of light emitting diodes, wherein intensities of the light emitted by each of said light emitting diodes are controlled
10 independently from each other.

35. The light source module of Claim 34, including at least one additional light source unit mounted on said circuit board, wherein said additional light source unit includes a plurality of light emitting diodes.

36. The light source module of Claim 34, wherein said light source unit includes a first light emitting diode, a second light emitting diode, and a third

light emitting diode.

37. The light source module of Claim 36, wherein:
said first light emitting diode emits light of a white color,
said second light emitting diode emits light of a orange color, and
said third light emitting diode emits light of a red color.

38. The light source module of Claim 36, wherein said first light emitting diode, said second light emitting diode, and said third light emitting diode emit light of the same color.

39. The light source module of Claim 36, wherein said first light emitting diode, said second light emitting diode, and said third light emitting diode are disposed on said circuit board in a cluster configuration.

40. The light source module of Claim 34, wherein said housing includes a light source cover and a light source base adapted to attach to each other and accommodate said circuit board.

41. The light source module of Claim 40, wherein said light source cover and said light source base are permanently attached to each other.

42. The light source module of Claim 40, wherein said light source base and said circuit board are adapted for mechanical and electrical connection to and disconnection from a wiring assembly.

43. A wiring assembly for a lighting system, comprising:
a electrically continuous wiring harness including a plurality of
electrically continuous wires; and
a plurality of connector units each including a plurality of
5 connection posts providing electrical connection to said wires;
wherein each of said connector units is adapted for receiving a
light source module including a circuit board including a plurality of LEDs; and
wherein said connection posts further provide electrical connection
to said circuit board such that each of said LEDs can be controlled
10 independently.

44. The wiring assembly of Claim 43, wherein said wires form a
plurality of separate circuits.

45. The wiring assembly of Claim 43, wherein said connector units are
spaced apart on said wiring harness.

46. The wiring assembly of Claim 43, wherein said wires are color
coded.

47. The wiring assembly of Claim 43, said connector unit includes a
wire control assembly top and a wire control assembly bottom attachable to said
wire control assembly top.

48. The wiring assembly of Claim 47, wherein said wire control
assembly top includes a plurality of connector ports each adapted for receiving
one of said connection posts.

49. The wiring assembly of Claim 47, wherein said wire control
assembly top and said wire control assembly bottom include a plurality of

analogous grooved adapted for receiving said wires.

50. The wiring assembly of Claim 43, wherein each of said connection posts includes a connection post extension adapted for making electrical contact with one of said wires.

51. A connector unit, comprising:
a plurality of connection posts electrically connectable to a wiring harness of a lighting system;
a wire control assembly top including a plurality of connector ports,
5 wherein each of said connector ports receives one of said connection posts;
and
a wire control assembly bottom attachable to said wire control assembly top;
wherein said connector unit is removably connectable to a light
10 source module of said lighting system.

52. The connector unit of Claim 51, further including a plurality of sleeves, wherein one of said sleeves mounts one of said connection posts to one of said wires.

53. The connector unit of Claim 51, wherein said wire control assembly bottom and said wire control assembly top include an analogous set of grooves accommodating said wires.

54. The connector unit of Claim 51, wherein said wire control assembly bottom and said wire control assembly top are permanently attached to each other.

55. A method for lighting, comprising the steps of:
- a) providing a lighting system including an electrically continuous wiring harness and a plurality of light source modules electrically connected with said wiring harness, wherein said light source module may be disconnected
 - 5 from said connector unit in the absence of interrupting an electrical connection of the wiring harness;
 - b) positioning said lighting system with respect to said surface;
 - and
 - c) emitting light from said light source modules.
56. The method for lighting of Claim 55, further including the step of independently controlling the relative intensity of the light emitted from each light emitting diode included in a light source unit of said light source module.
57. The method for lighting of Claim 56, further including the step of providing a combined light emission of a desired color and intensity from all of said light emitting diodes included in said light source unit.
58. The method for lighting of Claim 55, further including the step of mounting said lighting system to provide indirect illumination of said surface.
59. The method for lighting of Claim 55, further including the step of mounting said lighting system to provide illumination to a space.
60. The method for lighting of Claim 55, further including the step of providing a controlled color mixing design.

61. A method of repairing a lighting system, comprising the steps of:
disconnecting a defective light source module from a connector
unit electrically connected to a wiring harness, said step of disconnecting
occurring in the absence of interrupting an electrical connection of said wiring
5 harness; and
connecting a working light source module with said connector unit
in the absence of interrupting an electrical connection of said wiring harness.

62. The method of repairing a lighting system of Claim 61, further
comprising the step of using a snap-on mechanism to connect and disconnect
said light source module with said connector unit.